CURRENT LITERATURE

NOTES FOR STUDENTS

The "graft hybrids" of Bronvaux.—Since the work of WINKLER in producing so-called "graft hybrids" among several species of *Solanum*, the older chimeras, *Laburnum Adami* and the "Crataegomespili of Bronvaux" have attracted renewed attention. The graft hybrids of Bronvaux originated from the callus formed at the junction between a *Crataegus monogyna* stock and a scion of *Mespilus germanica*. These aberrant branches were of two types, and have been described under the names *Crataegomespilus Asnieresii* and *Crataegomespilus Dardari*. The first of these resembles more closely *Crataegus monogyna*, while the *Crataegomespilus Dardari* has a much closer resemblance to *Mespilus*. A thorough study of these two chimeras has been made by MEYER,[1] in order to find means of identifying the tissues which have been derived from the two parent species. In most respects the tissues of *Crataegus* and *Mespilus* are so similar that few distinguishing features can be found. Numerous chemical tests failed to discover any method for certainly differentiating the tissues of the two species. A study of the chromosomes, however, gave one good criterion, for, although the number of chromosomes in the two species is the same (32 in the diploid nucleus), the chromosomes of *Mespilus germanica* are considerably longer and thinner than those of *Crataegus monogyna*. The capacity to produce anthocyan, which is present in the epidermis of the fruits of *Crataegus*, is lacking in the fruits of *Mespilus*, while the reverse relation with respect to anthocyan is seen in the fact that *Mespilus* flowers turn reddish in aging, while those of *Crataegus* remain white. The fruits of the two chimeras show no anthocyan, and the flowers of both turn reddish with age.

The only clear distinction that could be found in the internal anatomy of the two species was visible only in longitudinal sections. The libriform vessels in *Mespilus* possess spiral thickenings which are absent in those of *Crataegus*. In both chimeras the libriform vessels lack spiral thickenings. The form of the epidermal cells is also strikingly different in the two species, those of *Mespilus germanica* being oblong, while those of *Crataegus* are nearly spherical. The cuticle of *Crataegus* is level, while that of *Mespilus* follows the contour of the rounded ends of the underlying cells. The epidermis of both chimeras agrees with that of *Mespilus*. The fruits of *Mespilus* are five-loculed and those of *Crataegus* one-loculed. Both of the chimeras have one-loculed fruits.

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[1] MEYER, J., Die Crataegomespili von Bronvaux. Zeitschr. Ind. Abstamm. Vererb. **13**:193–233. 1915.

The view of BAUR is sustained throughout, that these two "graft hybrids" consist of a core of *Crataegus* tissue overlaid by a mantle of *Mespilus*. In *Crataegomespilus Asnieresii* the mantle is the single epidermal layer, while in *C. Dardari* the first subepidermal layer is also of *Mespilus* tissue. By periclinal divisions this subepidermal layer may come to be represented by a number of cell layers, *Mespilus* chromosomes having been identified as deep as the eighth cell layer in one case. As the initiation of lateral branching results from periclinal divisions in the second subepidermal layer, the author argues that no chimera would be able to maintain itself as a chimera in which the mantle should consist of more than two layers. Several "reversions" to one or the other component species, and changes from one of the chimeras to the other, are described and easily explained, and one sectorial branch is figured and described.—G. H. SHULL.

Albinism in maize.—The important studies of EMERSON[2] on the inheritance of albinism and partial albinism in maize have been continued by one of his students.[3] Two different forms of albinism are found, one in which the seedlings are pure white, the other in which they are yellowish white, the latter turning slightly greenish as they grow older and sometimes developing enough chlorophyll to reach maturity. Both of these sorts of albinism prove to be simple Mendelian recessives to the normal green stains. The pure white seedlings could not be used in breeding, but the yellowish white supplied several mature plants which were selfed and which gave progenies consisting entirely of yellowish white seedlings. When plants heterozygous for the pure white were crossed with plants heterozygous for yellowish white, all of the offspring were green, showing that the normal green plants possess two determiners, the absence of one of which gives rise to pure white seedlings, while the absence of the other gives yellowish white seedlings. In confirmation of this interpretation, the second generation from these crosses between the heterozygous plants consisted of four different kinds of families: (*a*) all green; (*b*) green and pure white in the ratio 3:1; (*c*) green and yellowish white in the ratio 3:1; and (*d*) green, yellowish white, and pure white in the ratio 9:3:4. These results demonstrate the existence of the same genotypic situation in maize that NILSSON-EHLE[4] assumed to be present in rye in which pure white and yellowish white albinos were also found.

A continuation of the work on yellowish green (chlorina) plants described by EMERSON confirmed that investigator's conclusions that the yellowish

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[2] EMERSON, R. A., The inheritance of certain forms of chlorophyll reduction in corn leaves. Rep. Nebr. Agric. Exp. Sta. **25**:89–105. 1912.

[3] MILES, F. C., A genetic and cytological study of certain types of albinism in maize. Jour. Genet. **4**:193–214. *pl. 1.* 1915.

[4] NILSSON-EHLE, H., Einige Beobachtungen über erbliche Variationen der Chlorophylleigenschaft bei den Getreidearten. Zeitschr. Ind. Abstamm. Vererb. **9**:289–300. 1913.